EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	"7079576".pn. and overflow same (weight coefficient scal$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:44
L2	0	"7079576".pn. and overflow same training	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:13
L3	4	((train$4 pilot) near3 equaliz$8) same overflow same (weight coefficient scal$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:18
L4	2	((train$4 pilot) near3 (equaliz$8 filter$4 fir)) same (overflow near3 count$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:22
L5	5	((train$4 pilot) with (equaliz$8 filter$4 fir)) same (overflow near3 count$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:19
L6	3	(((train$4 pilot)) same (overflow near3 count$4)) and (375/229,230, 232,233,231,234,235,236.ccls.)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:21
L7	10	((train$4 pilot) near3 (equaliz$8 filter$4 fir)) and ((overflow near3 count$4) same (weight$3 scal$4 coefficient))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:23
L8	1	"7079576".pn. and overflow same (weight coefficient scal$4) and (ALG-$8 same train$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:46
L9	1	"7079576".pn. and overflow same (weight coefficient scal$4) and (ALG-$8 same (train$4 and overflow))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:48

EAST Search History

L10	1	"7079576".pn. and overflow same (weight coefficient scal$4) and (ALG-$8 same (overflow))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/03/21 10:48

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	3119	train$5 near5 equali$7	US-PGPUB; USPAT; EPO; DERWENT
2	BRS	L2	8616	overflow$5 near5 count$5	US-PGPUB; USPAT; EPO; DERWENT
3	BRS	L3	1	1 same 2	US-PGPUB; USPAT; EPO; DERWENT
4	BRS	L4	59	1 and 2	US-PGPUB; USPAT; EPO; DERWENT
5	BRS	L5	80	2 same equali$6	US-PGPUB; USPAT; EPO; DERWENT
6	BRS	L6	9	1 and 5	US-PGPUB; USPAT; EPO; DERWENT

	Time Stamp	Comments	Error Definition	Errors
1	2007/03/21 09:17			
2	2007/03/21 09:18			
3	2007/03/21 09:18			
4	2007/03/21 09:18			
5	2007/03/21 09:18			
6	2007/03/21 09:21			

	Type	L #	Hits	Search Text	DBs
7	BRS	L7	2	"7079576".pn.	US-PGPUB; USPAT; EPO; DERWENT

	Time Stamp	Comments	Error Definition	Errors
7	2007/03/21 09:22			

US-PAT-NO: 5608755

DOCUMENT-IDENTIFIER: US 5608755 A

TITLE: Method and apparatus for implementing carrierless amplitude/phase encoding in a network

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Abstract Text - ABTX (1):

A method and apparatus for (1) transmitting large amounts of data between a least a first and second station over a twisted pair, (2) reducing cross talk in a network using carrierless amplitude modulation and phase modulation encoding (CAP) with independent data clock source at each station, (3) providing a relatively simple and fast data detection apparatus, (4) maintaining synchronization between stations during idle periods while minimizing cross talk, (5) providing a technique to allow **filters to be trained** during idle periods, and (6) providing a technique which allows automatic gain control to be used with CAP. Particular signalling symbols are associated with each of the following conditions: (1) idle state, (2) preamble, (3) start of frame detection, (4) test condition, (5) each possible combination of five binary bits representing 32 different data symbols, and (6) jam condition. For example, a unique pair of the four inner most points on the CAP 36 constellation are used for indicating idle mode. All four inner most points are used for testing the link and **training the filters** in the receiver.

Brief Summary Text - BSTX (13):

Therefore, there is a need for a method and apparatus for reducing cross talk in a network using CAP encoding, providing a relatively simple and rapid line status detection apparatus, maintaining synchronization between stations during idle periods while minimizing cross talk, providing a technique to allow **filters to be trained** during idle periods, and providing a technique which allows automatic gain control to be used with CAP encoding.

Brief Summary Text - BSTX (15):

The present invention is a method and apparatus for transmitting data between a least a first and second station over a network interface, such as the well-known ethernet network. The present invention provides a method and apparatus for reducing cross talk in a network using carrierless amplitude modulation and phase modulation encoding (CAP) with independent data clock source at each station, providing a relatively simple and fast data detection apparatus, maintaining synchronization between stations during idle periods

while minimizing cross talk, providing a technique to allow **filters to be trained** during idle periods, and providing a technique which allows automatic gain control to be used with CAP.

Brief Summary Text - BSTX (19):

In accordance with the present invention, particular signalling symbols are associated with each of the following conditions: (1) idle state, (2) preamble, (3) start of frame detection, (4) test condition, (5) each possible combination of five binary bits representing 32 different data symbols, and (6) jam condition. For example, a unique pair of the four inner most points on the CAP 36 constellation are used for indicating idle mode. All four inner most points are used for testing the link and **training the filters** in the receiver. Two of the four points at the outer-most comers of the CAP 36 constellation are used as a preamble prior to transmission of data. The other two points at the outer-most comers of the CAP 36 constellation are used to transmit the first bit of data after the end of the preamble (i.e., start of frame detection). A first inner most point and a first outer-most point within the same quadrant of the CAP 36 constellation are used to signal a jam condition.

Brief Summary Text - BSTX (22):

In addition, test signals can be used to **train receive filters** as required during periods when no data is being transmitted. In this way, filters are accurately configured for data prior to transmission of the data. Thus, data is not distorted by the fact that the filters are not properly configured.

Detailed Description Text - DETX (24):

In TEST STATE 203, the present invention preferably outputs a TEST pattern that comprising a pseudo random sequence of inner constellation points 301,302, 306, 307. The TEST pattern is preferably generated by the encoder 111 directly. That is, the encoder 111 is signalled that the transmitter is in TEST STATE 203. In response, the encoder 111 generates a digital output which at the output of the FIR filters 117, 119 is equal to the TEST pattern. The TEST pattern is used to **train the receiver filters** included within the station that requested the TEST pattern. Training is performed in known fashion. Use of the inner most points 301, 302, 306, 307 of the constellation reduce the energy that is transmitted during TEST STATE 203. Thus, the amount of cross talk due to the TEST pattern is reduced.

Detailed Description Text - DETX (48):

The FIR filters may be in one of three different modes: (1) ADAPT MODE, in which **coefficient** adaptation takes place); (2) FREEZE MODE, in which **coefficient** adaptation is inhibited; and (3) INIT MODE, in which initial **coefficient** values are loaded from a fixed set of values. In accordance with the preferred embodiment of the present invention, the startup state machine 163 will transition the equalizer 150 from INIT MODE to ADAPT MODE. External control of these modes takes place through the receive MII 129. In accordance with one embodiment of the present invention, the FIR filters 143, 145 count the number of saturation events that occur due to excessive gain in the VGA 137 by **counting, during the accumulation, overflow** and underflow detected.

Detailed Description Text - DETX (124):

From the above description of one embodiment of the present invention, it can be seen that there are a number of advantages provided by the present invention. For example, since the present invention preferably alternates between the CAP constellation points 301,302 shown in FIG. 3 at the symbol rate, the frequency and amplitude of the idle pattern transmitted by a station during IDLE STATE 201 is relatively low. Thus, the near end cross talk that results from the transmitted signal is reduced. Furthermore, since during IDLE STATE 201, each component of the transmitted signal is at only one of two relative amplitudes, the near end cross talk filters may be simplified. Furthermore, because preamble symbols are detected by the detector 155 directly from the amplitude of the in phase and quadrature components of the received signal without having to decode or descramble the preamble symbol, preamble symbols are detected rapidly, facilitating rapid collision detection, and aiding in properly synchronizing the descrambler and decoder. In addition, the transmission of a pattern during IDLE STATE 201 in the transmitter allows a receiver coupled to the transmitter to maintain synchronization with the transmitter. The use of a pattern comprised of alternating between the two inner points of the CAP 36 constellation during IDLE STATE 201 reduces cross talk (i.e., electromagnetic emissions) since the amplitude is as low as allowed within the confines of the CAP 36 encoding scheme, and the frequency is reduced by alternating between two points in opposing quadrants of the CAP 36 constellation. In addition, use of a TEST pattern which can be requested of a transmitter by a receiver when the transmitter is in IDLE STATE 201 allows **filters in the receiver to be trained** prior to receipt of data.